Claims 1 and 5 have been further amended to adjust clarity in response to a combination/subcombination indefiniteness rejection.

Claim 3 has been amended to correct an antecedent basis issue.

Claim 6 has been amended to comport with the drawings, as per the Examiner's suggestion.

Independent method claims 1 and 8 have been further amended to recite discharging the dry powder through an opening or vent in the tank or roof structure. A similar limitation was already present in independent method claim 32.

Independent apparatus claim 5 has been further amended to recite that the foam conduit and dry chemical conduit are structured such that foam and dry chemical can be placed in separate, simultaneous fluid communication with the space through one opening.

Independent apparatus claim 25 is also further amended to recite an integrated structure for discharging foam through the tank aperture separately and simultaneously with discharging dry chemical.

Drawings (Action, page 2, paragraph 3)

In regard to the objection to the drawings, claim 6 has been amended to recite at least "two" foam conduits spaced around the tank and at least two dry chemical conduits spaced around the tank. Figure 5 illustrates two foam conduits and two dry chemical conduits. As per amended claim 6, applicant submits that no drawing correction is needed.

§112 Rejection – Claims 1-3, 8-12, 14-18, 20-30, 30-35 as indefinite, for failing to particularly point out and distinctly claim the invention (Action pages 3-5, paragraphs 4-5)

The Term "Difficult" in Claims 1, 5, 8 and 17 (Action paragraph 5, pages 3, 4)

Page 3, lines 8 to 14 of the PCT specification explains that the phrases "difficult to extinguish fuel or flammable liquid" or "difficult fuel or flammable liquid fire" are:

> "used herein to refer to fluid fuels or flammable liquids that are, at least, in substantial part, low surface tension fuels/liquids and/or high vapor pressure fuels/liquids and/or octane-boosted fuels/liquids and/or oxygenated fuels/liquids. The implied comparison in these instances would be recognized by one of ordinary skill in the art to be with the historic straight chain fuels or historical flammable liquids of the mid-20th century."

Applicant respectfully submits, in light of the above discussion and definition of the use of the term "difficult" in the specification, that claims 1, 5, 8 and 17 satisfy the requirement of particularly pointing out the invention and distinctly claiming the invention, to the ordinary skilled artisan. One of ordinary skill is reasonably apprised of the scope of the invention within the context of the problem to be solved. The relative term, as used in context, does not render the claim impermissibly indefinite. The specification does provide an adequate standard for ascertaining the requisite degree. One of ordinary

skill in the art is reasonably appraised the invention. As the above quote indicates, it is not uncertain what type of fire is limited by the claim. The type of fuel and fire are quantified.

Subcombination/Combination Rejection of Claims 1 and 5 (Action paragraph 5, pages 4, 5)

Claims 1 and 5 are rejected for having (1) a preamble directed to a "sub-combination" of a method while the body of the claim is directed to a combination of a "method, tank and liquid"; or (2) the "preamble directed to a sub-combination of a system but the body of the claim is directed to a combination of a system and a tank," respectively. Neither statutory nor case law was cited for the rejection nor any precedential tests or guidelines.

Applicant's attorney reviewed Board opinions of the last ten years that appeared to address this rejection. A conclusion was that this is an obscure area, little discussed. Nonetheless, as applicant's attorney best understands the "sense" of the rejection, it is that the preamble and the body of the claim appear to have different scope.

Without agreeing that the rejection is proper for claims 1 and 5, applicant has amended claims 1 and 5 in an attempt to alleviate that appearance. E.g. in claim 5 applicant adds the limitation "a tank containing a difficult to extinguish flammable liquid" as an element to the body of the claim. In regard to claim 1 applicant amends the preamble to recite treating "a difficult to extinguish fire of a flammable liquid associated with the tank", while the body of claim 1 references "the tank", that tank being the tank of the preamble in which there is a difficult to extinguish fire of a flammable liquid.

Although applicant traverses the assertion that the claims as previously written were impermissibly indefinite, applicant submits that the claims as amended avoid an impermissible appearance of incompatible scope.

Double Inclusion (Action paragraph 5, page 4)

Applicant has amended claim 1 to change "difficult to extinguish flammable liquid fire" to a grammatical equivalent, "a difficult to extinguish fire of a flammable liquid", in order to address an appearance (if any) of double inclusion.

Further, in regard to both claim 1 and claim 5, applicant points out that the preamble of the method and system claims including the qualifying "intended uses" is incorporated into the body of each claim by reference in the body of each claim to elements in the preamble.

Claim 1 is rejected as indefinite for reciting "a space" in line 6 and "substantially enclosed space" in line 2. Applicant respectfully traverses that that recitation in line 6 is a double inclusion of the recitation of line 2. Claim 1 line 2 recites a "substantially enclosed space" above liquid in the tank and below the roof. Line 6 of claim 1 recites discharging dry powder into "a space" between the roof and said blanket. Technically, the space between the roof and the blanket is different than the space above the liquid and below the roof.

Claim 2 is rejected as indefinite because it recites in line 2 "an NFPA regulated foam/film blanket" which is asserted to be a double inclusion "foam/film blanket" recited in line 4 of claim 1. Applicant respectfully traverses.

The foam/film blanket in line 4 of claim 1 is established over at least 90% of the surface of the liquid within the tank. The "NFPA regulated foam/film blanket" in line 2 of claim 2 is the foam/film blanket that NFPA regulations assert should be created given the circumstances of the fire. Those of ordinary skill in the art are familiar with and have copies of NFPA regulations. Those of ordinary skill in the art would be able to determine the closest NFPA regulated foam/film blanket in a fire context. The two recitations are distinct, not identical.

Insufficient Antecedent Basis (paragraph 5, page 4)

In regard to the insufficient antecedent basis of claim 3, claim 3 has been amended to recite "a" last 10 minutes.

Phrase "NFPA Regulated" (paragraph 5, page 4)

Applicant submits that the phrase "NFPA regulated" in claims 2, 3, 8 and 9 is not impermissibly indefinite. The ordinary skilled artisan of the industry is familiar with and should have access to a copy of the NFPA recommendations and regulations. See copy of extracted example portions. The recommendations commend a particular foam blanket procedure for given tank fires. Ordinary skilled artisans work out what the NFPA blanket should be when factors vary, based on the existing regulation. See Spec. page 7, lines 26-30. Claims 2, 3, 8 and 9 thus are not indefinite to the ordinary skilled artisan by virtue of references to "NFPA regulated."

Conclusion - §112

Applicant submits that the claims, as amended and discussed, satisfy §112 and avoid any basis for §112 rejection.

Rejection Under §102- Claims 1, 5, 7, 25-30, 32-35 as Anticipated by Sharma '068

Applicant respectfully traverses the rejection of the above claims, particularly as amended, under §102 over Sharma '068.

Re independent method claims 1 and 32: the instant independent claims, following the instant specification, teach the importance of the timing of the attack, e.g. on PCT specification page 2, lines 9 through 17 and on page 2, line 26 through page 3, line 1. The specification and the independent claims recite a staged and timed discharge of dry chem into a space between burning fuel/liquid and a roof, the timing of the dry chem attack selected to follow a pertinent period of foam application. Dry chem is a limited and expensive resource and discharging at the wrong time might be ineffective and waste the resource. The inventor offers the novel observation that dry chemicals timely inserted into "the space"

(above a blanket and below a roof) appear to "chase" remaining flames and completely extinguish the fire. Foam alone, by contrast, can be inferior, more costly and possibly inadequate.

Sharma, by contrast to the instant claims, teaches a device for delivering foam or dry chem to a space above a liquid and below a roof of a storage tank. Sharma's piping system (consisting of concentric rings just off the bottom of the tank and riser pipes delivering the substance upward from the rings) is useable with either foam or dry chem, but not both. Sharma specifically teaches that the pipes for the delivery of foam must be in the range 150 mm to 250 mm for the annular rings and cross members and 100 mm to 200 mm for the vertical discharge pipes. The pipes for the delivery of dry chem must be in the range of 50 to 75 mm for the annular rings and the cross-member and 25-50 mm for the vertical discharging pipes. See Sharma col. 3, lines 18-24. Hence, delivering both dry chem and foam would require a complete duplicate set of annular rings and cross-member and vertical pipes, which Sharma neither teaches, suggests nor discloses. The ordinary skilled artisan would recognize such duplication as impractical and cost prohibitive.

Sharma contains no teaching or suggestion as to when, or why, to use both dry powder and foam, were both available. Sharma neither teaches, suggests or tests discharging dry powder into a space between a roof and a foam blanket as per independent claims 1 and 32.

As above, by prohibitive costs, Sharma discourages the ordinary skilled artisan from attempting to use both dry powder and foam with Sharma's novel pipe system because Sharma's novel pipes would require two complete duplicate sets. Such duplication would "discourage" a person of ordinary skill in the art from considering applying dry powder and foam. Further, Sharma provides no reason, no motivation, to have dual capability. Sharma teaches no problem solved with a dual capability and no surprising results with a dual capability. Sharma teaches no timing relative to discharging dry powder and establishing a foam blanket, if one had dual capability. Note: of Sharma's eight examples: four were with foam only; four were with dry powder only.

Regarding independent apparatus claims 5 and 25: claim 5 has been amended to recite at least one separate dry chemical conduit with the foam conduit and separate dry chemical conduit structured such that foam and dry chemical can be placed in separate, simultaneous fluid communication with "the space" (between roof and blanket) through one opening. Sharma does not teach structure such that foam and dry chemical can be placed in separate, simultaneous fluid communication with the blanket/roof space through one opening. Sharma does not enable such structure.

Independent apparatus claim 25 has similarly been amended to recite that the system is structured to discharge foam through a tank aperture separately and simultaneously with discharging dry chemical through the aperture. Sharma does not teach or suggest structure for discharging foam separately yet

simultaneously with dry chemical through one tank aperture. Sharma does not enable structure that can be used simultaneously for discharging foam and dry chem through one aperture.

Further, as per claims 26 through 29, Sharma does not disclose a low flow dry chemical discharge tip, a high flow dry chemical discharge tip, the high flow tip including a pair of tips discharging to the left and to the right and the low flow discharging toward the middle. The Action does not locate such limitations in Sharma.

Applicant submits that claims 1, 5, 7, 25-30, and 32-37 are all allowable as novel over Sharma, without more, as all independent claims are so allowable.

Rejection Under §103 – Claims 1-3, 5-12, 14, 16-18, 20-22, 24-30, 32-35, over Boyd in View of Williams '366 or Foden '119

Applicant respectfully traverses the rejection of the independent method and apparatus claims, and those claims that depend thereon, over Boyd in view of Williams '366 or Foden '119.

Boyd

Boyd discloses improved pipes for discharging foam into large oil tanks provided with covers in the event of fire, discharging directly into the tank and preferably against the vertical side walls. Boyd column 1, line 49 – column 2 line 3. Boyd contains no teachings about: (1) difficult to extinguish flammable liquids; (2) any benefit of using dry powder with foam; (3) structure for using dry powder with foam; or (4) timing for using dry powder with foam.

Foden

In regard to dry chem and foam, Foden teaches:

> "Dry chemical compositions in the form of powder are commonly used to extinguish fires, particularly burning liquids such as gasoline. It is sometimes desirable to use these compositions in conjunction with foam: **for example, after a fire has been extinguished with powder a layer of foam may be applied to prevent reignition**. Again if an airplane crashes in an airfield two fire appliances may immediately attack any fire, one applying foam and the other a dry powder." Foden column 1 lines 11-19. Emphasis supplied
>
> "Such powders[diluted with inert material] present the advantage that they are cheap, **so when some loss of fire-extinguishing efficiency can be tolerated, e.g. for fires occurring in small paint or solvent tanks** in which the major part of the fire may be extinguished with a foam extinguisher and powder is used only to complete the extinguishing or to protect ancillary equipment such as jigs and fixtures which might become involved, inert powder may be included in the composition to reduce the price." Foden column 2 line 72 – column 3 line 9.

Note: in all of his tests described below, Foden addresses extinguishing fires in areas open to atmosphere. Foden has no specific teachings or suggestions in regard to fires in trapped vapor areas, with limited access to oxygen. Foden has no teaching or suggestion in regard to discharging into a confined space, as between a fixed roof and a foam blanket, where trapped vapor issues arise. Further the skilled artisan knows that, in regard to a fire in "a small paint or solvent tank, when some loss of fire extinguishing efficiency can be tolerated," that such fire presents a completely different scale of problem than a fire of a difficult to extinguish flammable liquid in a tank with a fixed roof and an internal roof, e.g. a cone with a floater. See attached NFPA pages.

Fodens Tests and Their Teachings

Foden, in column 3, line 59 to column 4 line 60, discloses a series of tests to show the efficacy of powder combined foam in regard to extinguishing burning gasoline in an open tank.

Foden's "first series" of tests demonstrate that a gasoline fire in an open tray (2 gallons of gasoline), allowed to burn for 30 seconds, could be extinguished with powder. (One of ordinary skill would assume that the reignition temperature had not been reached in the tray.)

Foden's "second series" of tests simulate a fire in which gasoline is escaping and, after being initially extinguished, lights again. This series of tests is closer to the instant invention, in that it relates to a fire in a tank that has burned for a period of time and has created such heat that if dry powder were to extinguish the fire, the fire would reignite. In such a situation, in direct contrast with the instant invention, Foden teaches first extinguishing the fire with powder, and then attacking reignited gasoline with foam. Foden specifically teaches that subsequent application of foam cleared in one minute 80% of the fire in a tray that was initially extinguished with powder and then reignited. Foden, hence, teaches the opposite of the instant invention, teaches away from the instant invention for tanks of burning gasoline. Foden teaches powder, then foam. See above Foden quote, column 1, lines 11-19.

In his "third series" of tests, Foden applies foam first to each tray to extinguish each fire. In one tray a "good" powder was then subsequently applied. In another tray no powder was applied. The gasoline was reignited. The time taken to destroy the foam was the same, in both cases, for foam then good powder and for foam alone, no powder. Again, from another direction, Foden teaches away from the instant invention. Foden teaches the uselessness of powder after foam in regard to a tank of burning gasoline.

Lastly, in a laboratory test which Foden recites to be "an excellent guide" to the properties of fire extinguishing agents, powder was applied, then foam. After 60 seconds only 10% of the gasoline was still burning. Foden recounted that if further foam had been applied, the fire would have been

extinguished. Again, Foden demonstrates the usefulness of powder followed by foam, the opposite of the instant invention.

The above series of Foden tests, read as a whole, teach one of ordinary skill in the art, in regard to tanks of burning gasoline, that the preferred technique is to extinguish with powder and then apply foam, to protect against re-ignition. Foden's tests show the efficacy of foam after powder to extinguish burning gasoline in an open container and the uselessness of powder after foam in the same situation. Foden's second quote above would be understood as relating only to a line-of-sight application of dry powder to remnant flames in a context where danger of reignition is low. The second quote certainly cannot be cited for explicitly teaching applicant's invention.

The '366

The '366, in regard to dry powder, teaches:

> "Fig. 3C illustrates mounting both the foam attack and an outer wall cooling attack upon tank T at the same time. In addition, aerial nozzle 54 is illustrated staged over the wall of tank T. In practice, aerial nozzles would be staged on opposite sides of the tank, to the extent possible. Preferably, aerial nozzle 54 would have dry chemical capability." See '366 column 5 lines 34-44.
>
> "Master stream nozzles used for 'knock down' of a fire can be utilized to subsequently cool inner tank wall portions, presuming that the tank diameter is such that opposite inside portions of the tank walls lie within the range of the nozzles. Preferably, two aerial nozzles would be staged over the tank walls. These aerial nozzles could apply both foam, useful for inner wall cooling, and selected dry chemicals to attack any small persistent flames at the fluid surface." See '366 column 6 lines 11-18.
>
> 1. "A method for extinguishing tank fires of low boiling point and/or low auto-ignition point fluids comprising:
> delivering foam to a fluid surface in a tank by at least one of the steps of throwing foam from a nozzle remote from the tank and bubbling foam up through the fluid in the tank;
> establishing a foam blanket to substantially cover the fluid surface in the tank; and subsequently;
> applying fluid to inner tank wall portions for cooling tank wall portions." See '366 column 10 lines 18 – 28.
>
> 8. "The method of claim 1 that includes selectively applying dry powder to flames in the tank."
> 9. "The method of claim 8 wherein the selective applying is subsequent to substantially covering the tank fluid surface with foam." See '366 column 10 lines 46-49.

To summarize, the '366 teaches a line-of-sight application of dry powder directly to residual flames.

Instant Invention

The instant specification and invention address the problem of a fire associated with a tank with a fixed roof, Spec pages 1-5. In the Background of the Invention section, the specification teaches that fire in an industrial storage tank with a fixed roof presents unique problems. (page 1 lines 23-24.) Collecting vapor in the cavity within the tank presents special hazards. (page 1 line 28; page 2 lines 18-29; page 3 lines 1-14). In the event of a fire in a tank with a roof, it is common practice to address the fire with a foam attack. NPFA has guidelines for the rate of foam application and the duration of such foam attack, (page 2 lines 8-10 and 15-16). See attachments. The instant inventor's discovery, based on observation, speculation, experience and testing, was that after laying down a presumably adequate foam blanket, the fire could persist for an unacceptable period of time. The inventor teaches that a significant vapor was yet trapped in the space above the blanket and below the roof, and given a cavity significantly large, the burn time for the trapped vapor could be several hours to days. During this vapor burn period the blanket could diminish and vapors could pass through the blanket, replenishing the vapor in the cavity. (See page 2, line 18-page 3 line 14).

The inventor teaches, based on testing, an application of dry chemical through an opening or vent to a space, between an established foam blanket and a roof, after the establishment of the blanket, in order to timely extinguish a fire. (No "selective application" of dry chem "to residual flames," as per the '366, is taught). The instant inventor surprisingly determined that an appropriately timed application of dry chem to the trapped vapor space can extinguish the fire. (See page 4 lines 1-6.) Such results could not have been expected or predicted without testing. Experiment had to prove the theory.

Applicant teaches and claims the importance of combining a foam/film blanket with a timed discharge of dry powder into "the blanket/roof space" through an available opening/vent. Dry powder is a scarce resource that must be used judiciously. (Spec. page 3 line 23; page 9 line 26). The ordinary skilled artisan knows that supplies of dry powder, for use on industrial sized tanks, last only a matter of seconds. The timing and the structuring of any dry powder application is important. Applicant's claim 1 recites establishing a foam blanket over at least 90% of the surface of the liquid and then discharging the dry powder into the space between the roof and "the" blanket, through an opening or vent. Dependent claims 2 and 3 approach the timing issue with more detail. Independent claim 8 recites a similar discharging of dry powder subsequent to proceeding through at least two thirds of an NFPA prescribed foam blanket procedure. Claim 9 further recites that the discharging of dry powder occurs during the last 10 minutes of an NFPA prescribed time for application of foam, and claim 11 recites further after 40 minutes of such procedure.

Specifically Independent Method Claims 1, 8 and 32 and Apparatus Claims 5, 17, and 25

Method Claims

Claim 1 recites, in regard to a tank with fixed roof, discharging dry powder into a space between the fixed roof and "said blanket." "Said blanket" is the established foam blanket over at least 90% of the surface of the liquid in the tank. The discharging is through an opening or vent in the tank or roof structure.

Claim 8 recites discharging dry chem into "a cavity above the foam and below the fixed roof" as well as after at least 2/3 of the way through an NFPA-recommended application rate/duration procedure guideline for a foam attack. Claim 8 also recites discharging through a vent or opening in the tank or roof structure.

Claim 32 recites discharging dry chem into "space below the fixed roof and above the foam blanket" after the foam blanket has been established. Claim 32 also recites discharging dry chem through an aperture in at least one of the tank and the fixed roof.

Claims 1/3 and 8/9 more specifically recite discharging dry chemical in the last 10 minutes of the NFPA- recommended procedure for foam. Claim 8/11 more specifically recites discharging dry chemical after at least 40 minutes of foam application. Neither Williams '366 nor Foden '119 teach these limitations.

The instant invention teaches the methodology of discharging dry chemical into the space between a fixed roof and a foam blanket, in the context of a fire of a flammable liquid in an industrial scale tank with a fixed roof and an internal roof. The "structure" of the dry chem discharging includes through an "opening or vents" (see spec., page 2, lines 4-15, 18-25) created by the tank and/or roof structure. The discharge is into a space wherein some level of combustion of trapped vapors is speculated to be taking place.

Apparatus Claims

Claim 5 recites, in addition to at least one foam conduit fixed to the tank, at least one dry chemical conduit fixed to the tank. The dry chemical conduit is in fluid communication with the space under the roof through the same opening as that of the foam conduit. The foam and dry chem conduit is structured such that the foam and dry chem can be placed in separate simultaneous fluid communication with the space through the opening.

Claim 17 recites a dry chemical supply pipe system rising around a portion of a tank wall having at least one end opening into a tank vent venting the space of the cavity below the tank fixed roof.

Claim 45 recites dry chemical piping integrated with a fixed foam system structured in combination to discharge foam and dry chem separately and simultaneously through a tank aperture.

Distinguishing the Prior Art

Re Methodology

Neither Williams '366 nor Foden teach or suggest the claimed structuring and/or timing of a dry chem discharge. Neither the '366 nor Foden address the problem of a fire in a tank with a fixed roof presenting the issue of vapor trapped in the space between a foam blanket and a fixed roof. Neither the '366 nor Foden contain teaching or suggestion in regard to a discharge of dry powder into such space. The '366 and Foden (column 3, lines 5-6) each teach selectively applying dry chem to residual flames, a standard "line-of-sight" application of dry chem, in a limited context.

Neither Foden nor the '366 teach applicant's claimed methodology or apparatus in regard to a tank with a roof. The advantage and purpose of the claimed invention is set out in the instant specification as well as the problem solved. To discuss a contrasting case, Sharma teaches a fixed system for use of dry chem in a tank. Also McCreary. But one of ordinary skill knows with dry chem "fixed systems," that the application of the dry chem must be able to be immediate, before the fire heats the fuel and surrounding surfaces to a temperature such that reignition is inevitable. At most, a few minutes are available. Dry chem extinguishes, but it does not cool. Sharma's and McCreary's system would be inherently understood by the skilled artisan to require immediate application. Foden, as discussed above, in contrast, accepts reignition as a factor to be contended with, but teaches the opposite, dry chem followed by foam, to address reignition. Neither Foden nor the '366 has disclosure or teaching relevant to a fire in a tank with a roof, to the effect of varying vapor pressure in the cavity over time, or to attacking the cavity with dry chem.

More particularly, the instant inventor teaches that in a fire in a tank with a roof, there is a high initial vapor pressure in the space under the roof and above the liquid. The high vapor pressure results initially in essentially all combustion taking place at the vents on the outside of the tank. The vapor inside is too rich to combust. It is pressured out of all of the vents, where it combusts outside.

After a foam blanket is established, the vapor pressure reduces, becomes atmospheric or slightly below atmospheric. The flames now reside only at a portion of the vents. The fire has gone from a "pressure fire" to a "drafting fire." Air is sucked in at non-flaming vents. The instant inventor speculated that as the vapor inside got leaner, there was more inside combustion.

Having observed and tested the phenomena, the inventor theorized that dry chem might interrupt the increased combustion in the space inside the tank under the roof. Interrupting the heightened combustion inside could also conceivably extinguish the fire. As the surface of the liquid and the structure of the tank have been cooled by the foam blanket, the likelihood of reignition is much lower.

Speculating that dry chem could be effective, Williams experimented with and tested the use of dry chem as claimed. The results were positive. It could not have been said that positive results were predictable or reasonably expected.

"Selectively applying dry powder to flames in a tank," as per the '366, is not the same as "discharging dry powder into the space between a fixed roof and a blanket through one or more structural openings." The "former" does not teach or suggest the "latter." The former, "selectively applying dry powder to flames," is a straightforward, line-of-sight application of dry powder to flames, when the risk of reignition is low. The latter, "discharging dry powder into a space through a structure opening," is neither "selectively applying" nor "applying to flames." The "latter" is non-selectively applying dry powder to a space. The instant inventor presents his motivation for, and his reasoning for, the "latter" act. The Examiner, on the other hand, presents no articulated reasoning linking the "latter" act to "completing the extinguishing." Neither the prior art nor established common knowledge teaches that the "latter" act leads to competing the extinguishing. There is no basis, no evidence, outside the instant application, for expecting "completing the extinguishing" to predictably and expectably follow from the "latter" act.

Observation and Testing by Williams - Summarized

A. Initially a fire in a tank with a fixed roof fire can be regarded as a "pressure fire". Fire appears at all vents/openings. Vapor is pressured out at all openings. Williams theorizes that the vapors inside are very rich and little to no combustion is taking place inside.

B. As a foam blanket covers and suppresses vapors, the fire becomes a "drafting fire." Fire burns at some vents (e.g. downstream) and drafts air in at other vents. Williams theorizes that pressure now is reduced to atmospheric inside or slightly below atmospheric, and that further, the vapors inside are becoming leaner. Significant combustion may now be taking place inside the tank.

C. Williams speculated that discharging dry chem into the space at this time might interrupt the theorized increased internal combustion such that the fire might completely go out, both internally and at the vents. (The foam blanket has significantly reduced the heat and thus the risk of reignition.)

D. Williams tested this theory. It worked. No one could have predicted the results without testing.

Absent visible flames, neither the '366 nor Foden provide motivation for the application of dry powder inside the tank. The '366 would teach at most applying dry powder to the flames outside at the vents.

The Examiner asserts: "It would have been obvious ... to have provided foam and dry powder in the device of Boyd as taught by Williams or Foden to complete the extinguishing." (Foden, column 3, lines 5-6) Applicant respectfully traverses.

Boyd provides no means for discharging dry powder into the space, between a fixed roof and the blanket, no opening or aperture. Boyd provides no teaching or suggesting in regard to such.

Foden and the '366 both teach a traditional line of sight application of dry powder directly to visible flame. Neither Foden nor the '366 teach applying dry powder to a non-visible interior space through a structural opening. Neither Foden nor the '366 nor common knowledge provide teaching or suggestion or reasoning why such would "complete the extinguishment". Applicant respectfully submits that it is only the instant disclosure that informs that such would "complete the extinguishment".

Applicant submits that a prima facie case in regard to the obviousness of claims 1-4, 8-13 and 15 – 35, based on the references, does not lie.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Sue Z. Shaper, Applicants' Attorney at 713 550 5710 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

11/5/9
Date

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